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CONTRACT NO. N68711-98-D-5713
CTO No. 0040

**ADDENDUM TO THE FINAL
SAMPLING AND ANALYSIS PLAN**

**Revision 1
June 25, 2003**

**CERCLA TIME-CRITICAL REMOVAL ACTION
AT WEST HOUSING AREA
ALAMEDA POINT
ALAMEDA, CALIFORNIA**

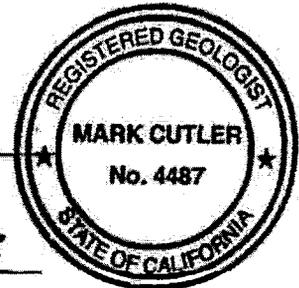
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ALAMEDA POINT
SSIC NO. 5090.3

FINAL
SAMPLING AND ANALYSIS PLAN

DATED 15 MAY 2003

IS FILED AS ADMINISTRATIVE RECORD NO.
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ALAMEDA POINT
SSIC NO. 5090.3

ADDENDUM TO THE FINAL
SAMPLING AND ANALYSIS PLAN
REVISION 0

DATED 25 JUNE 2003

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1.0 INTRODUCTION

This Addendum to the Sampling and Analysis Plan (SAP) was prepared by Foster Wheeler Environmental Corporation (FWENC) to support the time-critical removal action (TCRA) sampling activities at the West Housing Area (WHA), located on former Naval Air Station Alameda, (hereafter referred to Alameda Point) Alameda, California. The excavation area in the WHA will be located within transfer parcel Economic Development Conveyance (EDC)-5 and is located within the National Priorities List portion of Alameda Point. This Addendum to the SAP was prepared on behalf of the Navy, Southwest Division Naval Facilities Engineering Command (SWDIV) under Contract Task Order (CTO) No. 0040, issued under Remedial Action Contract No. N68711-98-D-5713. The modification process is based on U.S. Environmental Protection Agency (EPA) Guidelines and in conjunction with *Environmental Work Instruction (EWI) #2, 3EN2.2, Review, Approval, Revision, and Amendment of Sampling and Analysis Plans (SAPs)* (SWDIV, 2001)

This Addendum to the SAP includes only changes to the sections of the SAP (FWENC, 2003) that require modification relevant to the sampling activities described in this addendum. The overall field sampling strategy and procedures and overall quality assurance program are provided in the SAP as contained in the Attachment to the *Final Removal Action Work Plan, [Comprehensive Environmental Response, Compensation, and Liability Act] CERCLA Time-Critical Removal Action at West Housing Area, Alameda Point, Alameda, California* (FWENC, 2003).

1.1 OBJECTIVE

Additional text:

- Collect and analyze additional soil samples at zero to 0.5 feet below ground surface (bgs) and 0.5 to 2.0 feet bgs within the WHA to determine if additional excavation areas are required.
- Characterize soil at 2.0 to 4.0 feet bgs and 4.0 to 8.0 feet bgs to provide the Navy additional soil data for use in ongoing human health risk screening studies.

3.0 MAPS

Additional text:

Figure 3-1 illustrates the proposed additional sampling locations.

4.0 SAMPLING STRATEGY

4.3 IMPORTED SOIL SAMPLING

Revised text:

Two samples per delivery day from each imported material (backfill and topsoil) will be randomly collected. The samples will be composited by the laboratory into two composite samples and analyzed.

4.4 ADDITIONAL SOIL SAMPLING

New section.

Soil samples will be collected within transfer parcel EDC-5 to delineate the lateral limits of each potential excavation area in the WHA. Historic sample results by Bechtel Environmental, Inc. (Bechtel) (Bechtel, 2003) had identified areas with elevated benzo[a]pyrene equivalents and designated the sample area as an "Area of Concern" (AOC). A grid map, composed of 58.1-foot by 58.1-foot grids (equivalent to 250 cubic yards/grid), was superimposed over the AOC (see Figure 3-1). Those grids that cover areas with exposed soil or grass and had not been sampled during the pre-construction sampling event were designated for the additional sampling event. There are approximately 540 proposed sampling grids.

Soil samples will be collected in a manner consistent with the sampling methodology conducted by Bechtel in the *Draft Site Inspection Report Transfer Parcels EDC-12, EDC-17, PBC-3, EDC-21, and EDC-5 for Alameda Point, Alameda, California* (Bechtel, 2003). Direct-push sampling will be performed to collect samples at zero to 0.5 feet bgs and 0.5 to 2.0 feet bgs. Additionally, samples will be collected from 2.0 to 4.0 feet bgs and 4.0 to 8.0 feet bgs at prescribed locations. Each sample has been located at the approximate center (moved to avoid paved areas or structures if necessary) of each grid. The sample location and sample intervals are illustrated in Figure 3-1. The grid name, northing, and easting of each sample are identified on Table 4-1. The sample location and depth may be influenced by site conditions (for example, tree roots or an underground utility line). Adjustments to sample location or depth will be noted in the sample logbook and indicated on the site map. In the event that native material is encountered, drilling at that location will be stopped, and only the fill above it will be sampled. Each sample interval depth will be homogenized (as described in Section 6.10) by the laboratory and analyzed for EPA 8270C Selective Ion Monitoring (SIM) for polynuclear aromatic hydrocarbons (PAHs) only. All samples will be submitted to an off-site laboratory that has been Naval Facilities Engineering Service Center-evaluated and State of California Department of Health Services-certified.

The results from sample interval zero to 2.0 feet bgs for each grid will be evaluated based on the benzo[a]pyrene equivalent. If the benzo[a]pyrene-equivalent action limit of 1.0 milligrams per kilogram (mg/kg) is exceeded then the grid will be excavated. If the action limit is met then the grid will be left in place.

The results from sample interval 2.0 to 8.0 feet bgs will be used for the human health risk assessment.

5.0 REQUEST FOR ANALYSIS

5.1 ANALYTICAL METHODS

Additional text:

Additional Soil Samples

- PAHs by EPA Method 8270C SIM

5.2 SAMPLE CONTAINERS, PRESERVATIVES, AND HOLDING TIMES

Table 5-1 lists the sample containers, preservatives, and holding time requirements for samples.

6.0 FIELD METHODS AND SAMPLING PROCEDURES

The following section presents sampling procedures and sample handling procedures to be used for this project.

6.10 ADDITIONAL SOIL SAMPLING PROCEDURES

New section.

Soil samples will be collected within each of the 58.1-foot grid areas at locations shown on Figure 3-1. The surveyor will mark each sample location with a pin flag or other marking device.

The sampling will be performed as follows:

1. Sampling personnel will don a new pair of disposable nitrile gloves immediately before collecting soil samples at each location.
2. The work area around the sample location will be prepared by placing plastic sheeting on the ground.
3. The direct-push method will be used to access each sample interval depth. This method involves the use of a mounted hydraulic/percussion drive point. The drive point will be advanced through the soil and pushed to the desired depth, where a soil sample will be collected in either a split-barrel sampler with stainless-steel liners or a hollow core rod with a butyrate liner (or equivalent). Each sampler/rod will be decontaminated prior to use at each sample location.
4. Following sample acquisition at each sample interval depth (zero to 0.5, 0.5 to 2.0, 2.0 to 4.0, and 4.0 to 8.0 feet bgs), the sampler will be brought to ground surface.
5. The liners will be removed from the sampler. Both ends of the sleeves will be covered with Teflon[®] film and sealed with a plastic cap.
6. A signed custody seal will be affixed over both caps of the sleeve.
7. A completed sample label will be affixed to each sleeve and clear packing tape used to secure the sample label to the container.
8. Sleeves will be placed in double-resealable bags.
9. The sample number, date, time, and description of the sample will be recorded on the chain-of-custody (COC) form and in the field logbook. All entries will be written in indelible black ink.
10. Each sample will be numbered, labeled, and packaged in accordance with Sections 6.5 through 6.7 of the SAP (FWENC, 2003).
11. Field documentation, including field logbooks and COC forms, will be filled out in accordance with Section 6.8 of the SAP (FWENC, 2003).

Prior to analysis, samples will be homogenized by the laboratory using the following procedures:

1. The liners from each sample interval depth will be de-cored, and the soil placed in an aluminum tray.
2. The material in the tray will be divided into quarters, and each quarter will be mixed individually using plastic scoops.
3. Two quarters will then be combined to form halves.
4. The two halves will be mixed to form a homogeneous matrix.
5. The material will be folded from the bottom of the pan into the top of the pan to prevent settling of the finer-grained materials.
6. This procedure will be repeated several times until the samples are adequately mixed.

8.0 QUALITY ASSURANCE OBJECTIVES

8.1 DATA QUALITY OBJECTIVES

Table 8-1A provides a step-by-step summary of the data quality objective process for additional excavation area soil data. Table 8-1B provides a step-by-step summary of the data quality objective process for additional human health risk soil data.

8.2.2 Analytical Methods

The reporting limits established for this project are presented in Table 8-2.

8.2.2.1 Project Quality Control Limits

The precision and accuracy quality control limits for each method are identified in Table 8-3.

12.0 REFERENCES

- Bechtel Environmental Inc. (Bechtel). 2003. *Draft Site Inspection Report Transfer Parcels EDC-12, EDC-17, PBC-3, EDC-21, and EDC-5, Alameda Point, Alameda, Alameda, California*. March.
- Foster Wheeler Environmental Corporation (FWENC). 2003. *Final Removal Action Work Plan, CERCLA Time-Critical Removal Action at West Housing Area, Alameda Point, Alameda, California*. March.
- Southwest Division Naval Facilities Engineering Command (SWDIV). 2001. *Environmental Work Instruction (EWI) #2, 3EN2.2, Review, Approval, Revision, and Amendment of Sampling and Analysis Plans (SAPs)*.
- United States Environmental Protection Agency (EPA). 2001. *Region 4 Human Health Risk Assessment Bulletins – Supplement to Risk Assessment Guidelines for Superfund (RAGS)*. EPA Region 4, Atlanta, Georgia.
- _____. 2002. Preliminary Remediation Goals Table. EPA, Region IX.

TABLES

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
AA11	473486.55	1482021.429	X	X	X	X
AA12	473489.119	1481951.205	X	X	NS	NS
AA13	473486.565	1481893.476	X	X	X	X
AA14	473486.55	1481846.707	X	X	X	X
AA15	473508.524	1481796.409	X	X	X	X
AA16	473486.55	1481730.929	X	X	X	X
AA35	473483.408	1480622.698	X	X	NS	NS
AA37	473486.619	1480511.319	X	X	X	X
AA42	473486.619	1480220.819	X	X	X	X
BB11	473428.45	1482021.429	X	X	X	X
BB12	473441.117	1481948.139	X	X	X	X
BB14	473447.756	1481866.399	X	X	NS	NS
BB15	473428.45	1481789.029	X	X	X	X
BB16	473428.45	1481730.507	X	X	X	X
BB32	473423.65	1480791.021	X	X	X	X
BB37	473428.519	1480511.319	X	X	X	X
BB38	473428.519	1480453.219	X	X	X	X
BB39	473427.159	1480394.791	X	X	X	X
BB41	473428.519	1480279.313	X	X	X	X
BB42	473429.034	1480222.22	X	X	X	X
BB44	473428.519	1480104.619	X	X	X	X
BB45	473428.519	1480046.519	X	X	X	X
BB46	473430.909	1479998.064	X	X	X	X
CC11	473385.966	1482031.412	X	X	X	X
CC12	473378.817	1481940.987	X	X	X	X
CC14	473364.008	1481866.399	X	X	NS	NS
CC15	473370.35	1481789.029	X	X	X	X
CC16	473370.771	1481730.929	X	X	X	X
CC44	473369.054	1480105.979	X	X	X	X
CC45	473370.698	1480046.519	X	X	X	X
CC46	473370.91	1479995.251	X	X	X	X
DD11	473312.25	1482021.429	X	X	X	X
DD12	473332.347	1481939.454	X	X	NS	NS
DD14	473317.538	1481863.334	X	X	X	X
DD15	473312.25	1481789.029	X	X	X	X
DD16	473312.25	1481730.507	X	X	X	X
DD32	473304.527	1480791.683	X	X	X	X
EE11	473254.15	1482021.429	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
EE12	473250.42	1481984.914	X	X	NS	NS
EE13	473252.973	1481914.924	X	X	X	X
EE14	473254.15	1481847.129	X	X	X	X
EE15	473253.995	1481803.553	X	X	NS	NS
EE16	473252.333	1481730.929	X	X	X	X
EE28	473249.606	1481054.733	X	X	X	X
EE29	473249.606	1480984.271	X	X	X	X
EE30	473254.637	1480915.488	X	X	X	X
EE31	473257.991	1480849.221	X	X	X	X
EE46	473254.662	1479989.623	X	X	X	X
FF11	473196.05	1482021.429	X	X	X	X
FF12	473196.05	1481963.329	X	X	X	X
FF13	473196.291	1481909.815	X	X	X	X
FF14	473196.05	1481847.129	X	X	X	X
FF15	473196.05	1481788.607	X	X	X	X
FF16	473196.05	1481728.691	X	X	X	X
FF17	473196.05	1481672.829	X	X	X	X
FF18	473195.003	1481603.014	X	X	X	X
FF19	473176.7	1481563.063	X	X	X	X
FF20	473178.78	1481504.383	X	X	X	X
FF21	473186.683	1481427.393	X	X	X	X
FF28	473211.875	1481037.956	X	X	X	X
FF29	473206.006	1480975.883	X	X	NS	NS
FF41	473191.851	1480289.747	X	X	X	X
FF43	473196.119	1480162.719	X	X	X	X
FF44	473196.119	1480104.619	X	X	X	X
FF45	473196.119	1480046.519	X	X	X	X
FF46	473196.398	1479988.419	X	X	X	X
GG10	473147.012	1482060.966	X	X	NS	NS
GG11	473134.491	1482036.449	X	X	X	X
GG12	473134.726	1481986.198	X	X	NS	NS
GG13	473142.254	1481920.317	X	X	X	X
GG14	473144.617	1481847.971	X	X	NS	NS
GG15	473143.266	1481778.327	X	X	X	X
GG17	473119.546	1481668.828	X	X	NS	NS
GG18	473125.645	1481604.077	X	X	X	X
GG19	473129.277	1481558.255	X	X	NS	NS
GG2	473139.108	1482570.097	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
GG20	473133.638	1481502.236	X	X	NS	NS
GG4	473131.877	1482418.498	X	X	X	X
GG5	473138.655	1482370.442	X	X	X	X
GG6	473130.776	1482308.682	X	X	X	X
GG7	473150.665	1482238.552	X	X	X	X
GG8	473138.062	1482196.007	X	X	X	X
GG9	473137.95	1482137.629	X	X	X	X
H26	474590.45	1481150.35	X	X	NS	NS
H27	474590.45	1481092.25	X	X	X	X
H28	474590.45	1481034.15	X	X	X	X
H29	474590.45	1480976.05	X	X	X	X
H30	474590.45	1480917.95	X	X	X	X
H31	474590.45	1480859.85	X	X	X	X
H32	474590.45	1480801.75	X	X	X	X
H33	474590.45	1480743.65	X	X	X	X
HH10	473078.085	1482081.583	X	X	X	X
HH11	473080.977	1482006.362	X	X	NS	NS
HH12	473075.607	1481980.065	X	X	X	X
HH13	473081.804	1481913.937	X	X	NS	NS
HH14	473080.978	1481845.743	X	X	X	X
HH15	473097.916	1481773.002	X	X	NS	NS
HH16	473073.128	1481754.817	X	X	X	X
HH17	473079.615	1481672.974	X	X	X	X
HH18	473084.322	1481593.856	X	X	X	X
HH19	473064.905	1481546.74	X	X	NS	NS
HH2	473081.353	1482569.861	X	X	X	X
HH20	473082.669	1481517.809	X	X	X	X
HH4	473081.353	1482415.287	X	X	X	X
HH5	473079.85	1482370.029	X	X	X	X
HH6	473061.11	1482316.922	X	X	NS	NS
HH7	473079.85	1482253.829	X	X	X	X
HH8	473079.738	1482196.066	X	X	X	X
HH9	473074.78	1482132.418	X	X	X	X
I15	474511.448	1481785.671	X	X	NS	NS
I16	474520.523	1481730.241	X	X	X	X
I17	474532.35	1481673.25	X	X	X	X
I18	474532.35	1481615.15	X	X	X	X
I19	474532.234	1481557.05	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
I20	474532.35	1481498.95	X	X	X	X
I21	474532.35	1481440.85	X	X	X	X
I22	474532.144	1481382.75	X	X	X	X
I23	474532.35	1481324.65	X	X	X	X
I24	474532.35	1481266.55	X	X	X	X
I25	474532.35	1481208.45	X	X	X	X
I26	474532.35	1481150.35	X	X	X	X
II10	473021.75	1482079.529	X	X	X	X
II11	473021.75	1482021.429	X	X	X	X
II12	473022.232	1481965.549	X	X	X	X
II13	473027.908	1481908.487	X	X	NS	NS
II14	473021.75	1481847.129	X	X	X	X
II15	473024.79	1481782.845	X	X	NS	NS
II16	473018.831	1481739.978	X	X	X	X
II17	473021.75	1481672.407	X	X	NS	NS
II18	473021.75	1481614.729	X	X	X	X
II19	473021.329	1481556.629	X	X	X	X
II2	473021.283	1482568.983	X	X	X	X
II20	473020.907	1481498.529	X	X	X	X
II4	473032.067	1482414.263	X	X	NS	NS
II5	473038.079	1482372.376	X	X	X	X
II7	473041.484	1482256.549	X	X	NS	NS
II8	473033.539	1482201.191	X	X	X	X
II9	473021.75	1482137.629	X	X	X	X
J18	474474.25	1481615.15	X	X	X	X
J19	474474.134	1481557.05	X	X	X	X
J20	474474.25	1481498.95	X	X	X	X
J21	474474.25	1481440.85	X	X	X	X
J22	474474.044	1481382.75	X	X	X	X
J23	474474.25	1481324.856	X	X	X	X
J24	474474.25	1481266.55	X	X	X	X
J25	474474.25	1481208.45	X	X	X	X
J26	474474.25	1481150.35	X	X	X	X
JJ10	472963.229	1482079.529	X	X	X	X
JJ11	472962.807	1482021.429	X	X	X	X
JJ12	472963.65	1481962.907	X	X	X	X
JJ13	472968.548	1481903.866	X	X	NS	NS
JJ14	472974.379	1481838.629	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
JJ15	472976.516	1481777.956	X	X	NS	NS
JJ16	472979.697	1481732.343	X	X	X	X
JJ18	472982.878	1481622.553	X	X	NS	NS
JJ2	472980.189	1482569.759	X	X	X	X
JJ20	472963.65	1481498.529	X	X	X	X
JJ8	472970.647	1482187.881	X	X	NS	NS
JJ9	472963.65	1482137.629	X	X	X	X
K18	474435.122	1481625.139	X	X	X	NS
K19	474401.534	1481556.286	X	X	X	X
K20	474416.034	1481498.95	X	X	X	X
K21	474416.15	1481440.85	X	X	X	X
K22	474416.15	1481382.544	X	X	X	X
K23	474398.824	1481313.135	X	X	NS	NS
K24	474416.15	1481266.55	X	X	X	X
K25	474419.153	1481225.456	X	X	X	X
K26	474397.92	1481158.567	X	X	X	X
KK10	472905.55	1482079.107	X	X	X	X
KK11	472905.55	1482021.429	X	X	X	X
KK12	472905.55	1481963.75	X	X	X	X
KK13	472906.749	1481906.532	X	X	X	X
KK14	472908.973	1481833.098	X	X	NS	NS
KK15	472905.55	1481789.029	X	X	X	X
KK16	472905.129	1481731.35	X	X	NS	NS
KK18	472919.232	1481611.197	X	X	X	X
KK19	472925.015	1481553.784	X	X	NS	NS
KK2	472900.497	1482569.204	X	X	X	X
KK20	472927.684	1481496.372	X	X	NS	NS
KK8	472912.945	1482193.353	X	X	X	X
KK9	472908.497	1482127.04	X	X	X	X
L16	474335.392	1481725.603	X	X	NS	NS
L17	474354.959	1481671.071	X	X	X	X
L18	474358.05	1481613.188	X	X	X	X
L19	474358.05	1481557.05	X	X	X	X
L20	474357.934	1481498.95	X	X	X	X
L21	474346.491	1481451.345	X	X	X	X
L22	474346.491	1481379.166	X	X	X	X
L23	474371.087	1481316.009	X	X	X	X
L24	474358.05	1481266.55	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
L25	474348.951	1481207.739	X	X	X	X
L26	474358.05	1481150.35	X	X	X	X
LL15	472831.979	1481787.194	X	X	NS	NS
LL16	472841.137	1481728.369	X	X	X	X
LL17	472848.085	1481673.464	X	X	NS	NS
LL18	472847.45	1481614.729	X	X	X	X
LL19	472847.45	1481556.629	X	X	X	X
LL2	472847.45	1482544.75	X	X	X	X
LL20	472846.909	1481498.529	X	X	X	X
LL21	472847.45	1481440.429	X	X	X	X
LL3	472847.45	1482486.229	X	X	NS	NS
LL4	472847.45	1482428.129	X	X	X	X
LL5	472847.029	1482370.029	X	X	NS	NS
LL6	472847.45	1482311.929	X	X	X	X
LL7	472857.502	1482253.544	X	X	NS	NS
LL8	472862.804	1482205.809	X	X	X	X
M16	474293.593	1481737.692	X	X	X	X
M17	474292.474	1481665.277	X	X	X	X
M18	474299.95	1481615.15	X	X	X	X
M19	474281.896	1481570.274	X	X	NS	NS
M20	474299.834	1481498.95	X	X	X	X
M21	474286.398	1481438.689	X	X	X	X
M22	474299.95	1481382.75	X	X	X	X
M23	474299.95	1481324.65	X	X	X	X
M24	474299.95	1481266.55	X	X	X	X
M25	474277.153	1481196.423	X	X	X	X
M26	474299.95	1481150.35	X	X	X	X
MM14	472793.483	1481830.629	X	X	X	X
MM15	472775.283	1481800.861	X	X	NS	NS
N17	474241.85	1481673.25	X	X	X	X
N18	474218.31	1481617.84	X	X	X	X
N19	474241.85	1481557.05	X	X	NS	NS
N20	474241.734	1481498.95	X	X	X	X
N21	474241.85	1481440.85	X	X	X	X
N22	474241.85	1481382.75	X	X	X	X
N23	474241.85	1481324.65	X	X	X	X
N24	474231.389	1481255.237	X	X	X	X
N25	474243.502	1481222.52	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
N26	474241.85	1481150.35	X	X	X	X
NN15	472731.25	1481789.029	X	X	X	X
NN16	472730.829	1481730.929	X	X	X	X
NN23	472735.303	1481332.988	X	X	X	X
O17	474188.3	1481677.755	X	X	X	X
O18	474183.75	1481615.15	X	X	X	X
O19	474167.368	1481539.849	X	X	X	X
O20	474195.488	1481513.709	X	X	X	X
O21	474183.75	1481440.85	X	X	X	X
O22	474183.75	1481382.75	X	X	X	X
O23	474178.545	1481312.685	X	X	X	X
O24	474185.662	1481266.395	X	X	X	X
O25	474183.75	1481210.207	X	X	X	X
O26	474183.75	1481152.107	X	X	X	X
OO15	472673.15	1481788.607	X	X	X	X
OO16	472691.764	1481744.066	X	X	NS	NS
P17	474125.65	1481673.25	X	X	X	X
P18	474133.361	1481620.917	X	X	X	X
P19	474125.65	1481557.05	X	X	X	X
P20	474125.65	1481498.95	X	X	X	X
P21	474125.65	1481440.85	X	X	X	X
P22	474114.465	1481369	X	X	X	X
P23	474135.245	1481335.611	X	X	X	X
P24	474125.65	1481266.55	X	X	X	X
P25	474125.65	1481208.45	X	X	X	X
P26	474110.846	1481134.896	X	X	X	X
PP16	472615.05	1481730.929	X	X	X	X
PP17	472627.029	1481680.342	X	X	X	X
PP24	472592.41	1481252.04	X	X	NS	NS
PP26	472596.73	1481142.744	X	X	X	X
PP27	472600.434	1481089.022	X	X	NS	NS
PP28	472615.05	1481033.729	X	X	X	X
Q16	474057.886	1481729.78	X	X	X	X
Q17	474067.55	1481673.25	X	X	NS	NS
Q18	474061.722	1481609.715	X	X	X	X
Q19	474067.55	1481557.05	X	X	X	X
Q20	474067.55	1481498.95	X	X	X	X
Q21	474057.123	1481417.366	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
Q22	474067.55	1481382.75	X	X	X	X
Q23	474067.55	1481324.65	X	X	X	X
Q24	474067.55	1481266.55	X	X	X	X
Q25	474057.349	1481195.008	X	X	X	X
Q26	474067.55	1481150.35	X	X	X	X
QQ16	472556.95	1481730.929	X	X	X	X
QQ17	472556.95	1481672.829	X	X	X	X
QQ21	472556.95	1481440.429	X	X	X	X
QQ22	472556.529	1481382.329	X	X	X	X
QQ25	472558.176	1481208.226	X	X	NS	NS
QQ26	472536.079	1481143.504	X	X	X	X
QQ27	472540.253	1481083.798	X	X	NS	NS
QQ28	472543.143	1481024.313	X	X	X	X
QQ29	472565.252	1480990.223	X	X	NS	NS
R12	474008.787	1481963.75	X	X	X	X
R13	474009.45	1481905.65	X	X	X	X
R14	474009.45	1481847.55	X	X	X	X
R15	473988.772	1481795.676	X	X	X	X
R16	474009.45	1481731.35	X	X	X	X
R17	474021.281	1481690.694	X	X	X	X
R18	474009.45	1481615.15	X	X	X	X
R19	474009.45	1481557.05	X	X	X	X
R20	474009.45	1481498.95	X	X	X	X
R21	474008.149	1481440.85	X	X	X	X
R22	474031.996	1481407.593	X	X	NS	NS
R23	474009.45	1481324.65	X	X	X	X
R24	473993.313	1481248.68	X	X	X	X
R25	474017.578	1481215.945	X	X	X	X
R26	474009.45	1481150.35	X	X	X	X
R27	474009.45	1481092.25	X	X	X	X
R28	474025.808	1481043.859	X	X	X	X
R29	474009.45	1480976.05	X	X	X	X
R30	474025.808	1480926.527	X	X	X	X
R31	474009.45	1480859.85	X	X	X	X
RR13	472498.85	1481905.65	X	X	X	X
RR14	472515.106	1481832.309	X	X	NS	NS
RR15	472498.85	1481789.029	X	X	X	X
RR17	472486.256	1481671.351	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
RR18	472504.497	1481613.211	X	X	NS	NS
RR19	472518.071	1481558.042	X	X	X	X
RR20	472498.85	1481498.529	X	X	X	X
RR21	472498.85	1481440.429	X	X	X	X
S12	473951.35	1481963.75	X	X	X	X
S13	473951.35	1481905.65	X	X	X	X
S14	473945.354	1481834.256	X	X	NS	NS
S15	473951.35	1481789.45	X	X	X	X
S16	473969.219	1481743.268	X	X	X	X
S17	473951.35	1481673.25	X	X	NS	NS
S18	473951.35	1481615.15	X	X	X	X
S19	473939.682	1481545.418	X	X	X	X
S20	473954.873	1481489.632	X	X	NS	NS
S21	473951.35	1481440.85	X	X	X	X
S22	473951.35	1481382.75	X	X	X	X
S23	473959.928	1481332.883	X	X	X	X
S24	473951.35	1481266.55	X	X	X	X
S25	473951.35	1481208.45	X	X	X	X
S26	473951.35	1481150.35	X	X	X	X
S27	473964.68	1481105.368	X	X	X	X
S28	473951.35	1481034.15	X	X	X	X
S29	473951.35	1480976.05	X	X	X	X
S30	473951.35	1480917.95	X	X	X	X
S31	473951.35	1480859.85	X	X	X	X
SS11	472419.841	1482017.703	X	X	X	X
SS12	472435.855	1481947.359	X	X	NS	NS
SS13	472440.75	1481905.229	X	X	X	X
SS14	472441.622	1481846.847	X	X	X	X
SS15	472440.75	1481789.029	X	X	X	X
SS16	472446.603	1481713.276	X	X	X	X
SS17	472424.333	1481670.719	X	X	NS	NS
SS18	472440.75	1481614.729	X	X	X	X
SS19	472440.75	1481556.629	X	X	X	X
SS20	472440.75	1481498.107	X	X	X	X
SS21	472445.379	1481428.763	X	X	X	X
T11	473893.11	1482021.85	X	X	NS	NS
T12	473881.365	1481963.58	X	X	X	X
T13	473883.958	1481914.799	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
T14	473893.11	1481847.55	X	X	X	X
T15	473879.332	1481771.326	X	X	X	X
T16	473893.11	1481731.35	X	X	X	X
T17	473913.451	1481653.163	X	X	NS	NS
T18	473893.25	1481615.291	X	X	X	X
T19	473893.25	1481557.05	X	X	NS	NS
T20	473892.281	1481498.95	X	X	X	X
T21	473883.673	1481432.296	X	X	X	X
T22	473892.281	1481382.75	X	X	X	X
T23	473880.782	1481313.411	X	X	X	X
T24	473911.14	1481284.833	X	X	X	X
T25	473893.25	1481208.45	X	X	X	X
T26	473901.599	1481158.137	X	X	X	X
T27	473893.25	1481092.25	X	X	X	X
T28	473893.25	1481034.15	X	X	X	X
T29	473893.25	1480976.05	X	X	X	X
T30	473895.817	1480919.897	X	X	X	X
T31	473888.589	1480854.813	X	X	X	X
TT11	472382.65	1482021.429	X	X	X	X
TT12	472393.017	1481943.258	X	X	NS	NS
TT13	472382.65	1481904.807	X	X	X	X
TT14	472390.108	1481833.084	X	X	X	X
TT16	472371.823	1481739.125	X	X	NS	NS
TT17	472393.891	1481653.291	X	X	X	X
TT18	472382.65	1481614.307	X	X	X	X
TT19	472382.65	1481556.629	X	X	X	X
TT20	472382.65	1481497.686	X	X	X	X
TT21	472382.65	1481440.429	X	X	X	X
U11	473835.01	1482021.85	X	X	X	X
U12	473824.089	1481982.742	X	X	NS	NS
U13	473829.037	1481899.832	X	X	X	X
U14	473834.7	1481847.55	X	X	X	X
U15	473846.114	1481800.547	X	X	NS	NS
U16	473835.15	1481731.491	X	X	X	X
U17	473835.15	1481673.391	X	X	X	X
U18	473847.108	1481615.382	X	X	X	X
U19	473829.537	1481563.635	X	X	X	X
U20	473834.181	1481498.95	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
U21	473834.181	1481440.85	X	X	X	X
U22	473844.629	1481392.903	X	X	NS	NS
U23	473825.573	1481344.127	X	X	X	X
U24	473835.15	1481266.55	X	X	X	X
U25	473835.15	1481208.45	X	X	X	X
U26	473835.15	1481150.35	X	X	X	X
U27	473857.007	1481114.457	X	X	X	X
U28	473835.15	1481034.15	X	X	X	X
U29	473841.655	1480982.04	X	X	X	X
U30	473835.15	1480917.95	X	X	X	X
U31	473835.15	1480859.85	X	X	X	X
U32	473831.537	1480819.769	X	X	NS	NS
U33	473834.327	1480743.841	X	X	X	X
U34	473835.219	1480685.619	X	X	X	X
UU11	472324.55	1482021.429	X	X	X	X
UU12	472324.55	1481963.329	X	X	X	X
UU13	472324.55	1481904.386	X	X	X	X
UU14	472318.627	1481858.697	X	X	X	X
UU16	472324.55	1481730.929	X	X	NS	NS
UU17	472323.732	1481671.198	X	X	X	X
UU18	472324.55	1481613.886	X	X	X	X
UU19	472324.55	1481555.786	X	X	X	X
UU20	472323.732	1481486.618	X	X	X	X
UU21	472324.55	1481440.429	X	X	X	X
V11	473776.325	1482026.72	X	X	X	X
V12	473776.952	1481972.156	X	X	X	X
V13	473776.769	1481905.65	X	X	NS	NS
V14	473776.46	1481847.55	X	X	X	X
V15	473776.91	1481789.31	X	X	X	X
V16	473776.91	1481731.491	X	X	X	X
V17	473776.91	1481673.391	X	X	X	X
V18	473776.91	1481615.15	X	X	X	X
V19	473776.71	1481558.05	X	X	NS	NS
V20	473769.442	1481499.326	X	X	X	X
V21	473785.746	1481431.657	X	X	X	X
V22	473775.088	1481369.149	X	X	NS	NS
V23	473794.523	1481342.598	X	X	X	X
V24	473776.91	1481266.55	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
V25	473791.606	1481223.102	X	X	NS	NS
V26	473776.91	1481150.35	X	X	X	X
V27	473776.91	1481092.25	X	X	X	X
V28	473776.91	1481034.15	X	X	X	X
V29	473776.91	1480976.05	X	X	X	X
V30	473776.91	1480917.95	X	X	X	X
V31	473776.91	1480859.85	X	X	X	X
V32	473777.476	1480815.394	X	X	X	X
V33	473777.119	1480742.953	X	X	X	X
V34	473776.365	1480685.88	X	X	X	X
VV10	472266.45	1482079.529	X	X	X	X
VV11	472266.45	1482021.007	X	X	X	X
VV12	472266.871	1481963.329	X	X	X	X
VV13	472285.827	1481922.365	X	X	X	X
VV14	472266.45	1481847.129	X	X	X	X
VV16	472255.928	1481733.407	X	X	X	X
VV17	472266.45	1481672.829	X	X	X	X
VV18	472260.346	1481637.638	X	X	NS	NS
VV19	472266.45	1481556.629	X	X	X	X
VV20	472264.722	1481510.694	X	X	X	X
VV21	472266.45	1481440.007	X	X	X	X
VV7	472266.45	1482254.25	X	X	X	X
VV8	472266.45	1482195.729	X	X	X	X
VV9	472266.45	1482137.629	X	X	X	X
W11	473718.529	1482021.85	X	X	X	X
W12	473709.033	1481969.71	X	X	X	X
W13	473718.529	1481905.65	X	X	X	X
W14	473735.14	1481843.727	X	X	NS	NS
W15	473733.912	1481796.1	X	X	X	X
W16	473718.669	1481731.491	X	X	X	X
W17	473718.669	1481673.391	X	X	X	X
W18	473718.669	1481615.15	X	X	X	X
W19	473718.644	1481558.464	X	X	X	X
W20	473717.7	1481498.95	X	X	X	X
W21	473717.7	1481440.85	X	X	X	X
W22	473700.127	1481388.331	X	X	X	X
W23	473718.669	1481325.619	X	X	X	X
W24	473718.669	1481266.55	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
W25	473718.669	1481208.45	X	X	X	X
W26	473704.423	1481152.107	X	X	NS	NS
W27	473718.669	1481092.25	X	X	X	X
W28	473724.368	1481014.929	X	X	X	X
W29	473730.511	1481002.638	X	X	X	X
W30	473718.669	1480917.95	X	X	X	X
W31	473699.183	1480840.09	X	X	NS	NS
W32	473717.055	1480811.418	X	X	X	X
W33	473719.019	1480742.953	X	X	X	X
W34	473719.019	1480685.13	X	X	X	X
WW11	472220.174	1482030.188	X	X	X	X
WW12	472200.376	1481951.513	X	X	NS	NS
WW13	472208.35	1481905.229	X	X	X	X
WW14	472208.35	1481847.129	X	X	X	X
WW15	472208.35	1481789.029	X	X	X	X
WW16	472208.35	1481730.929	X	X	X	X
WW17	472207.929	1481672.829	X	X	X	X
WW19	472226.225	1481558.184	X	X	X	X
WW20	472230.815	1481506.051	X	X	NS	NS
WW29	472215.508	1480985.295	X	X	X	X
WW8	472218.894	1482189.853	X	X	X	X
X11	473677.012	1482029.405	X	X	NS	NS
X12	473675.606	1481978.039	X	X	X	X
X13	473673.463	1481892.686	X	X	NS	NS
X15	473660.85	1481788.888	X	X	X	X
X16	473660.85	1481731.069	X	X	X	X
X17	473647.44	1481673.851	X	X	X	X
X18	473679.793	1481633.743	X	X	X	X
X19	473650.956	1481569.007	X	X	X	X
X23	473660.85	1481325.198	X	X	X	X
X27	473660.85	1481091.829	X	X	X	X
X28	473660.85	1481033.729	X	X	X	X
X29	473660.85	1480975.629	X	X	X	X
X30	473660.85	1480917.529	X	X	X	X
X31	473660.85	1480859.429	X	X	X	X
X33	473667.886	1480737.968	X	X	X	X
X34	473674.479	1480681.436	X	X	NS	NS
XX10	472149.829	1482079.529	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
XX12	472151.95	1481961.529	X	X	X	X
XX13	472150.25	1481905.229	X	X	X	X
XX14	472163.345	1481833.605	X	X	NS	NS
XX15	472172.385	1481807.68	X	X	X	X
XX9	472142.253	1482136.862	X	X	NS	NS
Y11	473602.61	1482021.288	X	X	X	X
Y13	473602.217	1481895.813	X	X	NS	NS
Y14	473602.3	1481846.988	X	X	X	X
Y15	473602.75	1481788.748	X	X	X	X
Y16	473602.75	1481730.929	X	X	X	X
Y31	473602.75	1480859.288	X	X	X	X
Y32	473591.381	1480807.262	X	X	NS	NS
Y34	473583.719	1480680.847	X	X	X	X
Y35	473590.281	1480618.946	X	X	NS	NS
Y36	473595.906	1480572.99	X	X	X	X
Y37	473596.844	1480512.027	X	X	NS	NS
Y42	473602.819	1480220.819	X	X	X	X
Y43	473602.819	1480162.619	X	X	X	X
Y44	473602.819	1480104.796	X	X	X	X
Y45	473602.819	1480046.519	X	X	X	X
YY10	472075.39	1482081.503	X	X	X	X
YY11	472080.181	1482021.106	X	X	NS	NS
YY12	472092.15	1481963.329	X	X	X	X
YY13	472092.15	1481905.229	X	X	X	X
YY16	472092.15	1481730.929	X	X	X	X
YY9	472092.15	1482137.629	X	X	X	X
Z11	473567.76	1482022.216	X	X	X	X
Z13	473527.418	1481892.454	X	X	NS	NS
Z14	473535.078	1481848.008	X	X	X	X
Z15	473544.65	1481789.029	X	X	X	X
Z16	473544.65	1481730.929	X	X	X	X
Z31	473545.212	1480859.288	X	X	X	X
Z32	473539.34	1480797.593	X	X	X	X
Z34	473544.719	1480685.619	X	X	X	X
Z35	473544.719	1480627.519	X	X	X	X
Z36	473544.719	1480569.419	X	X	X	X
Z45	473552.782	1480025.263	X	X	NS	NS
Z46	473543.407	1480008.381	X	X	X	X

TABLE 4-1

ADDITIONAL SOIL SAMPLE LOCATION DETAILS

GRID #	Northing	Easting	SAMPLE DEPTH (Feet)			
			0 to 0.5	0.5 to 2.0	2.0 to 4.0	4.0 to 8.0
ZZ10	472034.05	1482079.529	X	X	X	X
ZZ11	472034.05	1482021.429	X	X	X	X
ZZ12	472044.023	1481962.625	X	X	X	X
ZZ13	472046.434	1481904.144	X	X	NS	NS
ZZ14	472054.268	1481845.06	X	X	X	X
ZZ15	472056.076	1481790.196	X	X	NS	NS
ZZ8	472033.176	1482186.3	X	X	X	X
ZZ9	472034.05	1482137.629	X	X	X	X

Notes:

NS - not sampled

TABLE 5-1

SAMPLE CONTAINERS, PRESERVATIVES, AND HOLDING TIME REQUIREMENTS

Analysis	Analytical Method	Container	Preservative	Holding Time
SOIL SAMPLES				
PAHs	EPA Method 8270C SIM	Stainless-steel sleeve or butyrate liner (or equivalent)	Cool to 4±2°C	14 days to extract; 40 days to analyze

Notes:

°C – degrees Celsius

EPA – U.S. Environmental Protection Agency

PAH – polynuclear aromatic hydrocarbon

SIM – Selective Ion Monitoring

TABLE 8-1A

DATA QUALITY OBJECTIVES FOR ADDITIONAL EXCAVATION AREA SOIL DATA

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Statement of the Problem	Decisions	Inputs to Decisions	Study Boundaries	Decision Rules	Limits on Decision Errors	Sampling Design Optimization
<p>Previous investigation has revealed the presence of PAHs in the fill material used to create additional land¹. The PAH-impacted areas are within a residential housing area.</p> <p>The PAHs pose a health risk for the residents within the impacted areas.</p>	<p>Does the soil within each sampling grid, (see Figure 2-2 of this SAP), have a concentration of the B[a]P equivalent that exceeds the action limit of <1.0 mg/kg?</p>	<p>Previous data from investigation conducted by Bechtel. PAH results are taken from the pre-construction sampling activities, as described in this SAP.</p>	<p>Revised text.</p> <p>Sampling grids identified within transfer parcel EDC-5 on Figure 3-1 of this Addendum to the SAP.</p> <p>Fieldwork is planned to start June 2003 and is scheduled for 3 weeks.</p>	<p>Revised text.</p> <p>If the concentration of the B[a]P equivalent is below the action limit of 1,000 µg/kg, then the soil within the grid will not be excavated.</p> <p>If the concentration of the B[a]P equivalent exceeds the action limit of 1,000 µg/kg, then the soil within the grid will be excavated.</p>	<p>To limit decision errors, analytical method requirements and project-specific DQOs were established. Published analytical method and laboratory-specific performance requirements are the primary determiners of DQOs for precision and accuracy. The reporting limits are based the project action limit.</p> <p>Field crews will review this SAP before collection of samples. The laboratory to perform the analysis will be given a copy of this SAP before analysis of samples.</p> <p>Third-party data validation will be performed on PAH grid samples.</p> <p>Sampling and analysis protocols will be carefully followed to limit errors</p>	<p>Revised text.</p> <p>Soil samples will be collected from each grid at zero to 0.5 and 0.5 to 2.0 feet bgs. Soil samples will be analyzed for PAHs.</p>

Notes:

(1) Information on site background is detailed in Section 2.0

µg/kg – micrograms per kilogram

B[a]P – benzo[a]pyrene

bgs – below ground surface

DQO – data quality objective

EDC – Economic Development Conveyance

mg/kg – milligrams per kilogram

PAH – polynuclear aromatic hydrocarbon

SAP – Sampling and Analysis Plan

TABLE 8-1B

DATA QUALITY OBJECTIVES FOR ADDITIONAL HUMAN HEALTH RISK SOIL DATA

STEP 1	STEP 2	STEP 3	STEP 4	STEP 5	STEP 6	STEP 7
Statement of the Problem	Decisions	Inputs to Decisions	Study Boundaries	Decision Rules	Limits on Decision Errors	Sampling Design Optimization
<p>Additional text.</p> <p>Site characterization of transfer parcel EDC-5 from sample interval depths from 2.0 to 8.0 feet bgs.</p>	<p>Additional text.</p> <p><u>Characterization</u></p> <p>Are detected concentrations of carcinogenic PAHs (expressed as B[a]P equivalents, a normalization based on the toxicity of B[a]P) less than 1,000 µg/kg ?</p> <p>Is the B[a]P-equivalent concentration greater than 1,000 µg/kg?</p> <p><u>Human Health Risk</u></p> <p>Is the combined cancer risk for PAHs and historical data equal to or less than the target risk of 1.6 x 10⁻⁵?</p>	<p>Additional text.</p> <p>Concentrations of PAHs in soil samples collected for this project.</p> <p>Human health screening criteria [EPA Preliminary Remediation Goals for residential soil (2002)].</p> <p>Historical EBS human health risk assessment results.</p>	<p>Additional text.</p> <p>Sampling grids identified for transfer parcel EDC-5 in Figure 3-1 in this Addendum to the SAP.</p> <p>Depth of each grid for site characterization is 8 feet bgs.</p>	<p>Additional text.</p> <p><u>Characterization</u></p> <p>If the B[a]P-equivalent concentration(s) is less than the established screening criteria (1,000 µg/kg), the area surrounding this location will be further considered under CERCLA.</p> <p>If the B[a]P-equivalent concentration(s) is greater than 1,000 µg/kg, the area surrounding this location will be recommended for further evaluation under CERCLA.</p> <p><u>Human-health Risk</u></p> <p>If the combined risk from the PAH evaluation and the EBS risk assessment is less than 1.6 x 10⁻⁵, the transfer parcel, or a portion thereof, will be recommended for no further action under CERCLA.</p> <p>If the combined risk from the PAH evaluation and the EBS risk assessment is greater than 1.6 x 10⁻⁵, the area, or a portion thereof, will be recommended for further evaluation under CERCLA.</p>		<p>Additional text.</p> <p>Soil samples will be collected from each grid at 2.0 to 4.0 and 4.0 to 8.0 feet bgs. Soil samples will be analyzed for PAHs.</p>

Notes:

µg/kg – micrograms per kilogram

B[a]P – benzo[a]pyrene

bgs – below ground surface

CERCLA – Comprehensive Environmental Response, Compensation, and Liability Act

EBS – environmental baseline survey

EDC – Economic Development Conveyance

EPA – U.S. Environmental Protection Agency

PAH – polynuclear aromatic hydrocarbon

SAP – Sampling and Analysis Plan

TABLE 8-2

PROJECT REPORTING LIMITS

Parameter/Method	Analyte	Soil		Pre-construction Criteria
		RL	Unit	
PAHs EPA Method 8270C SIM	Acenaphthene	5	µg/kg	N/A
	Acenaphthylene	5	µg/kg	N/A
	Anthracene	5	µg/kg	N/A
	Benzo[a]anthracene	5	µg/kg	N/A
	Benzo[a]pyrene	5	µg/kg	N/A
	Benzo[b]fluoranthene	5	µg/kg	N/A
	Benzo[g,h,i]perylene	5	µg/kg	N/A
	Benzo[k]fluoranthene	5	µg/kg	N/A
	Chrysene	5	µg/kg	N/A
	Dibenz[a,h]anthracene	5	µg/kg	N/A
	Fluoranthene	5	µg/kg	N/A
	Fluorene	5	µg/kg	N/A
	Indeno[1,2,3-cd]pyrene	5	µg/kg	N/A
	Naphthalene	5	µg/kg	N/A
	Phenanthrene	5	µg/kg	N/A
	Pyrene	5	µg/kg	N/A
	B[a]P-equivalent	N/A	mg/kg*	1.0

Notes:

* EPA. 2001. *Region 4 Human Health Risk Assessment Bulletins – Supplement to Risk Assessment Guidelines for Superfund (RAGS)*. U.S. EPA Region 4, Atlanta, Georgia.

µg/kg – micrograms per kilogram

B[a]P – benzo[a]pyrene

EPA – U.S. Environmental Protection Agency

mg/kg – milligrams per kilogram

N/A – not applicable

PAH – polynuclear aromatic hydrocarbon

RL – reporting limit

SIM – Selective Ion Monitoring

TABLE 8-3

QUALITY CONTROL ACCEPTANCE CRITERIA

Method	Analyte	Accuracy (% R)	Soil	Precision (RPD)	Soil
PAHs EPA Method 8270C SIM	Acenaphthene	43-133		≤ 45	
	Benzo[a]pyrene	40-104		≤ 33	
	Fluoranthene	44-133		≤ 45	
	Pyrene	40-133		≤ 47	
	<i>Surrogate</i>				
	2-Fluorobiphenyl	35-124		N/A	
	Nitrobenzene-d5	35-134		N/A	
	Terphenyl-d14	35-134		N/A	

Notes:

%R – percent recovery

EPA – U.S. Environmental Protection Agency

N/A – not applicable

PAH – polynuclear aromatic hydrocarbon

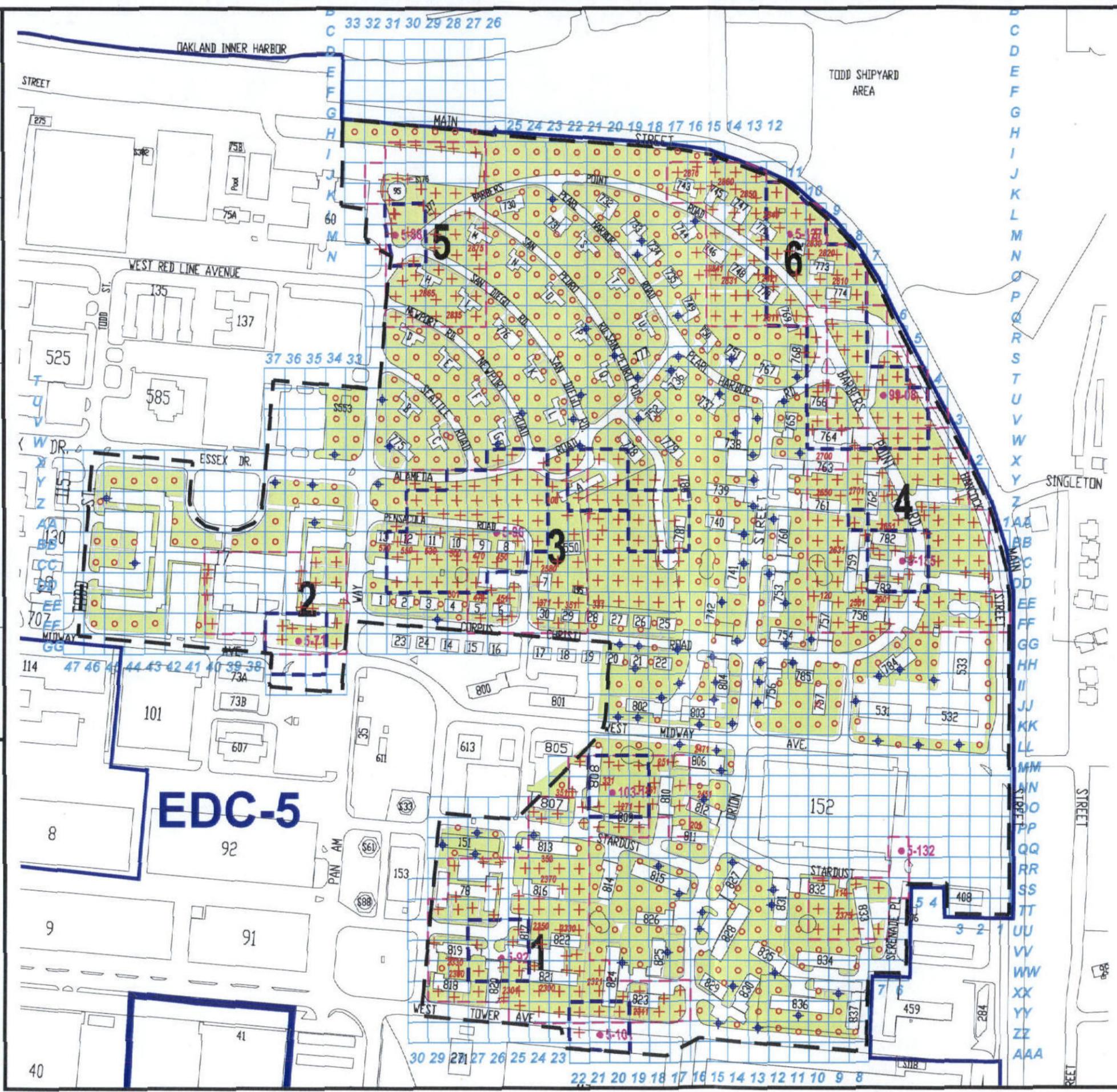
RPD – relative percent difference

SIM – Selective Ion Monitoring

FIGURES

DRAWING NO: 03303731.DWG
 DCN: FWS0-RAC-03-3037
 CTO: #0040
 APPROVED BY: AE
 CHECKED BY: VR
 DATE: 06/18/03
 REV: REVISION 1
 DRAWN BY: MD

I:\1990-RAC\CTO-0040\DWG\033037\03303731.DWG
 PLOT/UPDATE: JUL 02 2003 09:54:16



LEGEND:

- 1 AA SAMPLE GRID
- o PROPOSED ADDITIONAL SOIL SAMPLE LOCATIONS (8 ft.)
- + PROPOSED ADDITIONAL SOIL SAMPLE LOCATIONS (2 ft.)
- + HISTORIC SOIL SAMPLE LOCATIONS (FWENC 2003)
- 99-08 HISTORICAL SAMPLE LOCATION (BECHTEL, 2003) BENZO[A]PYRENE-EQUIVALENT CONCENTRATION ≥ 1.0 mg/kg
- AREA OF CONCERN BOUNDARY (BECHTEL, 2003)
- TRANSFER PARCEL BOUNDARY
- PROPOSED SAMPLING LOCATION FOR TIME-CRITICAL REMOVAL ACTION
- COMPLETE EXCAVATION GRID
- 6 SEQUENCE OF EXCAVATION
- 2601 BUILDING ADDRESS NUMBER

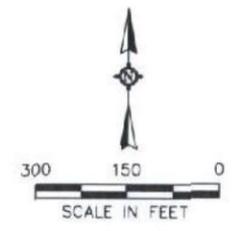


Figure 3-1
PROPOSED ADDITIONAL SOIL SAMPLING LOCATIONS
 ALAMEDA POINT - WEST HOUSING AREA
FOSTER W WHEELER
ENVIRONMENTAL CORPORATION